



SPATIAL INFORMATION DAY 2010

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Spatial Information Day 2010 Abstract

Title: Environmental zonation across the Australian arid region based on long term vegetation dynamics

Session: 10 – Environmental Management

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Abstract:

Zonation of landscapes into units with characteristic climate, landforms, soils and vegetation provides a necessary foundation for survey and management. Such stratification, when based on biophysical properties and environmental associations, represents a static view of the environment and does not reflect the dynamics and function of the landscape. In arid landscapes in particular, erratic climatic events cause landscape response which may be expressed over long periods of time and not readily discerned through the field surveys and imagery that form the basis of current stratifications. For interpretation of the landscape, and for management, it is important to understand the underlying long term dynamics of the environment.

The aim of this research is to understand the dynamics and functional response of vegetation in the Australian arid zone and use this to inform, and potentially improve, current stratification of the region. Specifically this study sought to identify the underlying factors influencing patterns of Australian arid vegetation growth and identify regions of similar long term response.

Analysis of 25 years of satellite imagery revealed the major patterns of vegetation growth throughout the region. Dominant factors of variation were identified as the spatial distribution of total vegetation growth, seasonality of growth, magnitude of seasonal variability in growth and regularity of variation in growth. In addition to these dominant factors a considerable percentage of the variation resulted from episodic vegetation growth of limited spatial extent and duration.

Classes expressing these functional components were compared with the existing biogeographical regions, revealing agreement in some instances, and in other cases adding information previously not available. The study demonstrates a new approach to landscape zonation that has potential for much wider application.

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